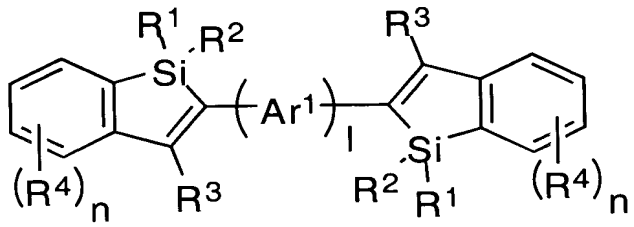
IN THE CLAIMS

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (1):

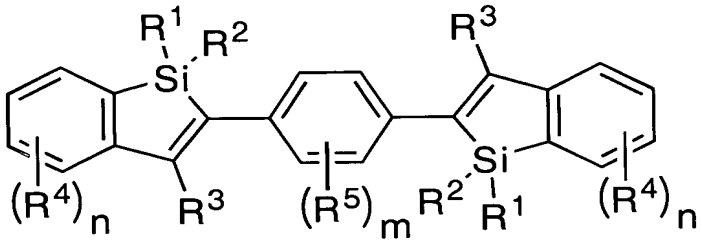


(1)

where Ar^1 is an arylene group, a substituted arylene group, an oligoarylene group, a substituted oligoarylene group, a bivalent heterocyclic group, a bivalent substituted heterocyclic group, a bivalent oligoheterocyclic group, or a bivalent substituted oligoheterocyclic group; R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^3 is a hydrogen group, an alkyl group, an alkylthio group, an aryl group, an arylthio group, an arylalkyl group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, a hydroxyalkyl group, a hydroxymethyl group, a substituted hydroxymethyl group, a silyl group, a substituted silyl group, a stannyl group, a substituted stannyl group, magnesium halide, zinc halide, boronic acid, boronic ester, a boryl group, a monovalent heterocyclic group, or a halogen atom; R^4 is a hydrogen atom, an alkyl group, an

alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; l is an integer of 0 or 1; and n is an integer of 0 to 4.

2. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (2):

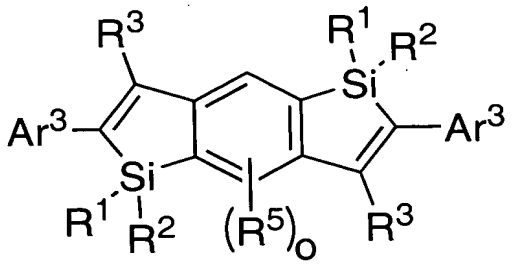


(2)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^3 is a hydrogen group, an alkyl group, an alkylthio group, an aryl group, an arylthio group, an arylalkyl group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, a hydroxyalkyl group, a hydroxymethyl group, a substituted hydroxymethyl group, a silyl group, a substituted silyl group, a stannyl group, a substituted stannyl group, magnesium halide, zinc halide, boronic acid, boronic ester, a boryl group, a monovalent heterocyclic group, or a halogen atom; R^4 and R^5 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an

arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; m is an integer of 0 to 4; and n is an integer of 0 to 5.

3. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (3):

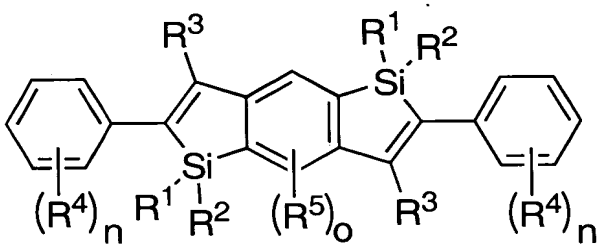


(3)

where Ar^3 is an aryl group, a substituted aryl group, a bivalent oligoarylene group, a bivalent substituted oligoarylene group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, a monovalent oligoheterocyclic group, or a monovalent substituted oligoheterocyclic group; R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^3 is a hydrogen group, an alkyl group, an alkylthio group, an aryl group, an arylthio group, an arylalkyl group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, a hydroxyalkyl group, a hydroxymethyl group, a substituted hydroxymethyl group, a silyl group, a substituted silyl group, a stannyl group, a substituted stannyl group, magnesium halide, zinc halide, boronic acid, boronic ester, a boryl group, a monovalent heterocyclic group, or a halogen

atom; R^5 is a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; and o is an integer of 0 to 2.

4. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (4):

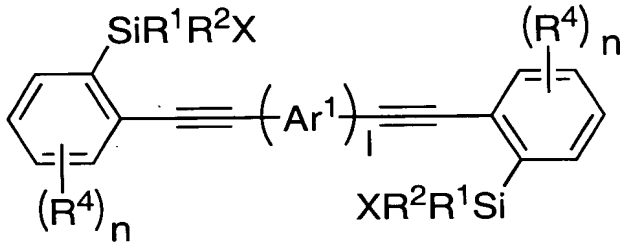


(4)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^3 is a hydrogen group, an alkyl group, an alkylthio group, an aryl group, an arylthio group, an arylalkyl group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, a hydroxyalkyl group, a hydroxymethyl group, a substituted hydroxymethyl group, a silyl group, a substituted silyl group, a stannyl group, a substituted stannyl group, magnesium halide, zinc halide, boronic acid, boronic ester, a boryl group, a monovalent heterocyclic group, or a halogen atom; R^4 and R^5 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an

arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; n is an integer of 0 to 5; and o is an integer of 0 to 2.

5. (Original) An intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material, the intermediate having a structure represented by following formula (5):

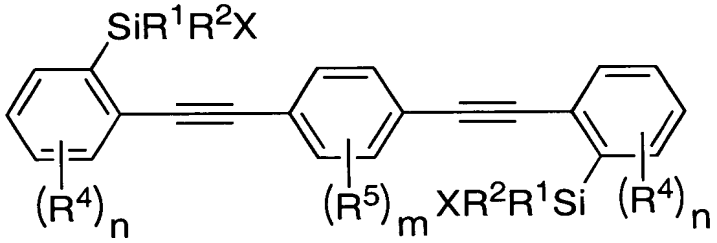


(5)

where X is a hydrogen atom, a halogen atom, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, a silyl group, a substituted silyl group, a stannyl group, or a substituted stannyl group; Ar^1 is an arylene group, a substituted arylene group, an oligoarylene group, a substituted oligoarylene group, a bivalent heterocyclic group, a bivalent substituted heterocyclic group, a bivalent oligoheterocyclic group, or a bivalent substituted oligoheterocyclic group; R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^4 is a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a

silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; l is an integer of 0 or 1; and n is an integer of 0 to 4.

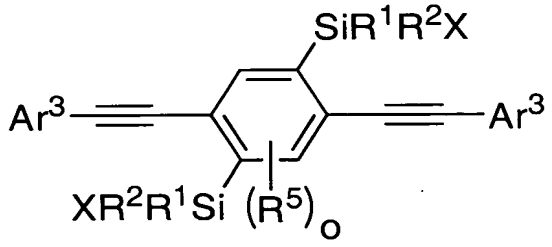
6. (Original) An intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material, the intermediate having a structure represented by following formula (6):



(6)

where X is a hydrogen atom, a halogen atom, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, a silyl group, a substituted silyl group, a stannyl group, or a substituted stannyl group; R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^4 and R^5 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; and m and n are independently an integer of 0 to 4.

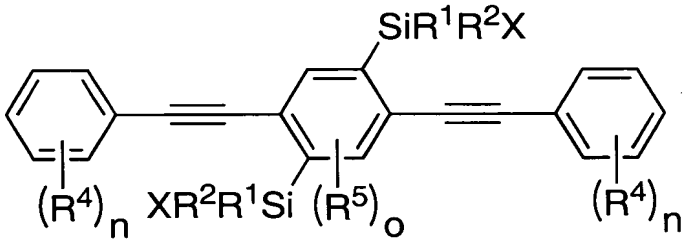
7. (Original) An intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material, the intermediate having a structure represented by following formula (7):



(7)

where X is a hydrogen atom, a halogen atom, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, a silyl group, a substituted silyl group, a stannyl group, or a substituted stannyl group; Ar^3 is an aryl group, a substituted aryl group, a bivalent oligoarylene group, a bivalent substituted oligoarylene group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, a monovalent oligoheterocyclic group, or a monovalent substituted oligoheterocyclic group; R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^5 is a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a boryl group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; and o is an integer of 0 to 2.

8. (Original) An intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material, the intermediate having a structure represented by following formula (8):



(8)

where X is a hydrogen atom, a halogen atom, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, a silyl group, a substituted silyl group, a stannyl group, or a substituted stannyl group; R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^4 and R^5 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; n is an integer of 0 to 5; and o is an integer of 0 to 2.

9. (Currently Amended) A process for producing a polycyclic fused ring type π-conjugated organic material, the process comprising the steps of:

producing a dianion intermediate by allowing the intermediate as set forth in claim 5 to react with a metal reductant; and

obtaining the polycyclic fused ring type π-conjugated organic material ~~as set forth in claim 1~~ by trapping the dianion intermediate by using an electrophile.

10. (Currently Amended) A process for producing a polycyclic fused ring type π-conjugated organic material, the process comprising the steps of:

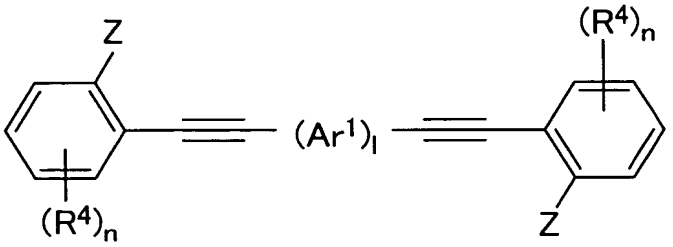
producing a dianion intermediate by allowing the intermediate as set forth in claim 7 to react with a metal reductant; and

obtaining the polycyclic fused ring type π-conjugated organic material ~~as set forth in claim 3~~ by trapping the dianion intermediate by using an electrophile.

11. (Original) A process for producing an intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material, the process comprising the step of:

dimetalating, by using an organometallic base, a material having a structure represented by following formula (9), where Z is a bromine atom or an iodine atom; R^4 is a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a boryl group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; and l is an integer of 0 or 1; and

obtaining the intermediate as set forth in claim 5 by trapping, by using an organosilicon reagent, the material thus dimetalated.

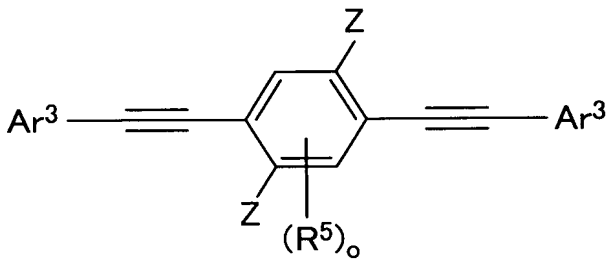


(9)

12. (Original) A process for producing an intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material, the process comprising the steps of:

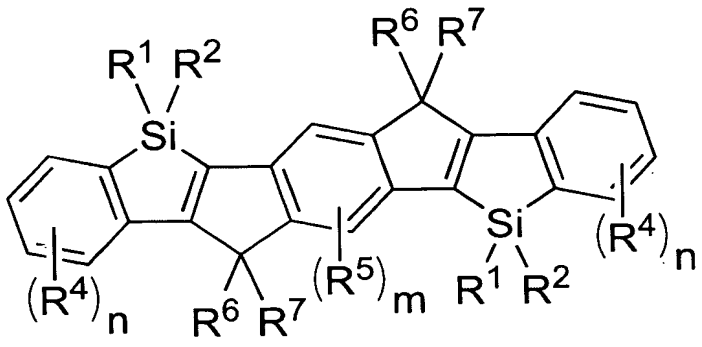
dimetalating, by using an organometallic base, a material having a structure represented by following formula (10), where Z is a bromine atom or an iodine atom; Ar^3 is an aryl group, a substituted aryl group, a monovalent oligoarylene group, a monovalent substituted oligoarylene group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, a monovalent oligoheterocyclic group, or a monovalent substituted oligoheterocyclic group; R^5 is a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a boryl group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; and o is an integer of 0 to 2; and

obtaining the intermediate as set forth in claim 7 by trapping, by using an organosilicon reagent, the material thus dimetalated.



(10)

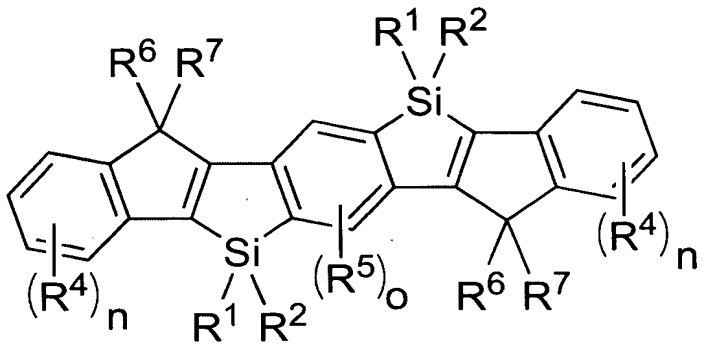
13. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (11):



(11)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^4 and R^5 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a boryl group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; R^6 and R^7 are either (i) independently a hydrogen atom, an alkyl group, an aryl group, a substituted aryl group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, an alkoxy group, an aryloxy group, an arylalkyl group, an arylalkoxy group, an arylalkenyl group, an arylalkynyl group, or an allyl group, or (ii) mutually a bivalent biaryl group; m is an integer of 0 to 2; and n is an integer of 0 to 4.

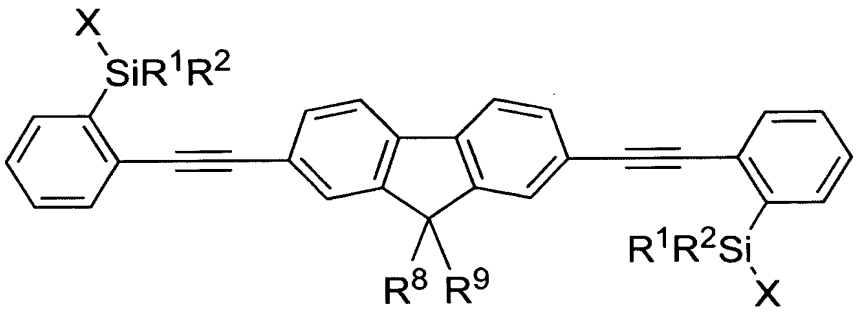
14. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (12):



(12)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^4 and R^5 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a boryl group, a substituted boryl group, a monovalent heterocyclic group, or a halogen atom; R^6 and R^7 are either (i) independently a hydrogen atom, an alkyl group, an aryl group, a substituted aryl group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, an alkoxy group, an aryloxy group, an arylalkyl group, an arylalkoxy group, an arylalkenyl group, an arylalkynyl group, or an allyl group, or (ii) mutually a bivalent biaryl group; o is an integer of 0 to 2; and n is an integer of 0 to 4.

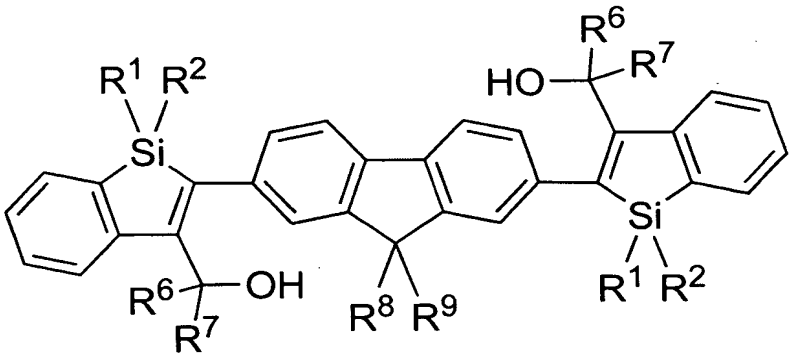
15. (Original) An intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (13):



(13)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^8 and R^9 are either (a) independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, a substituted aryl group, an arylalkyl group, an arylalkenyl group, an arylalkynyl group, an allyl group, a silyl group, a substituted silyl group, an acyl group, or a monovalent heterocyclic group, or (b) mutually a bivalent biaryl group; and X is a hydrogen atom, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, or an alkylsulfonyloxy group.

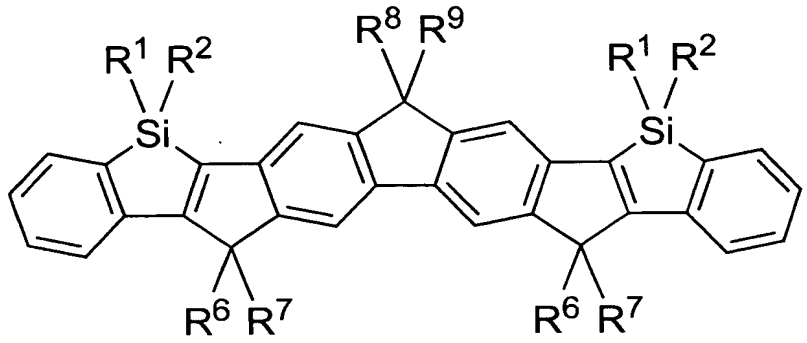
16. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (14):



(14)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^6 and R^7 are either (i) independently a hydrogen atom, an alkyl group, an aryl group, a substituted aryl group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, an alkoxy group, an aryloxy group, an arylalkyl group, an arylalkoxy group, an arylalkenyl group, an arylalkynyl group, or an allyl group, or (ii) mutually a bivalent biaryl group; and R^8 and R^9 are either (a) independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, a substituted aryl group, an arylalkyl group, an arylalkenyl group, an arylalkynyl group, an allyl group, a silyl group, a substituted silyl group, an acyl group, or a monovalent heterocyclic group, or (b) mutually a bivalent biaryl group.

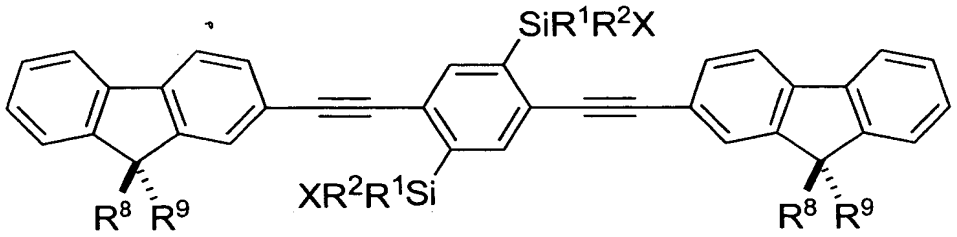
17. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (15):



(15)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^6 and R^7 are either (i) independently a hydrogen atom, an alkyl group, an aryl group, a substituted aryl group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, an alkoxy group, an aryloxy group, an arylalkyl group, an arylalkoxy group, an arylalkenyl group, an arylalkynyl group, or an allyl group, or (ii) mutually a bivalent biaryl group; and R^8 and R^9 are either (a) independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, a substituted aryl group, an arylalkyl group, an arylalkenyl group, an arylalkynyl group, an allyl group, a silyl group, a substituted silyl group, an acyl group, or a monovalent heterocyclic group, or (b) mutually a bivalent biaryl group.

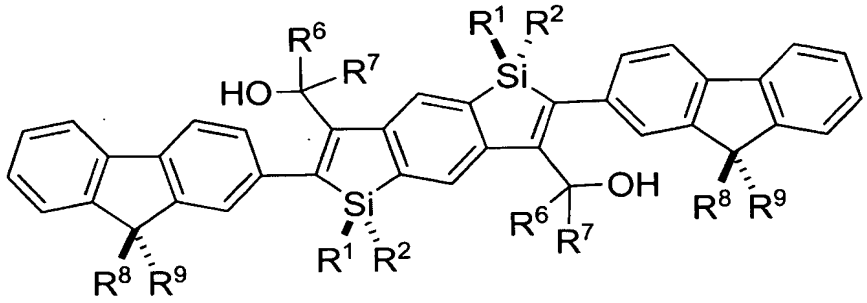
18. (Original) An intermediate for synthesis of a polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (16):



(16)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^8 and R^9 are either (a) independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, a substituted aryl group, an arylalkyl group, an arylalkenyl group, an arylalkynyl group, an allyl group, a silyl group, a substituted silyl group, an acyl group, or a monovalent heterocyclic group, or (b) mutually a bivalent biaryl group; and X is a hydrogen atom, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, or an alkylsulfonyloxy group.

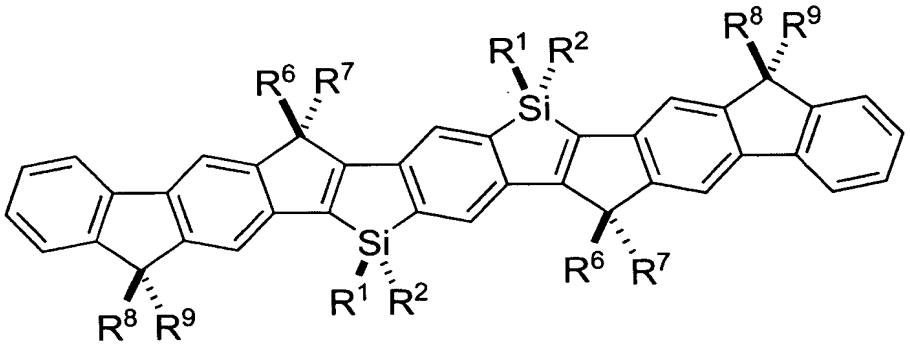
19. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (17):



(17)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^6 and R^7 are either (i) independently a hydrogen atom, an alkyl group, an aryl group, a substituted aryl group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, an alkoxy group, an aryloxy group, an arylalkyl group, an arylalkoxy group, an arylalkenyl group, an arylalkynyl group, or an allyl group, or (ii) mutually a bivalent biaryl group; and R^8 and R^9 are either (a) independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, a substituted aryl group, an arylalkyl group, an arylalkenyl group, an arylalkynyl group, an allyl group, a silyl group, a substituted silyl group, an acyl group, or a monovalent heterocyclic group, or (b) mutually a bivalent biaryl group.

20. (Original) A polycyclic fused ring type π-conjugated organic material having a structure represented by following formula (18):



(18)

where R^1 and R^2 are independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, an aryloxy

group, an arylthio group, an arylalkyl group, an arylalkoxy group, an arylalkylthio group, an arylalkenyl group, an arylalkynyl group, an allyl group, an amio group, a substituted amino group, a silyl group, a substituted silyl group, a silyloxy group, a substituted silyloxy group, an arylsulfonyloxy group, an alkylsulfonyloxy group, a monovalent heterocyclic group, or a halogen atom; R^6 and R^7 are either (i) independently a hydrogen atom, an alkyl group, an aryl group, a substituted aryl group, a monovalent heterocyclic group, a monovalent substituted heterocyclic group, an alkoxy group, an aryloxy group, an arylalkyl group, an arylalkoxy group, an arylalkenyl group, an arylalkynyl group, or an allyl group, or (ii) mutually a bivalent biaryl group; and R^8 and R^9 are either (a) independently a hydrogen atom, an alkyl group, an alkoxy group, an alkylthio group, an aryl group, a substituted aryl group, an arylalkyl group, an arylalkenyl group, an arylalkynyl group, an allyl group, a silyl group, a substituted silyl group, an acyl group, or a monovalent heterocyclic group, or (b) mutually a bivalent biaryl group.